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A-posteriori access strategies in all-optical slotted rings

Bianco, A. Distefano, V. Fumagalli, A. Leonardi, E. Neri, F.

Dipt. di Elettronica, Politecnico di Torino, Italy;

 This paper appears in: **Global Telecommunications Conference, 1998. GI 98. The Bridge to Global Integration. IEEE**

Meeting Date: 11/08/1998 - 11/12/1998

Publication Date: 8-12 Nov. 1998

Location: Sydney, NSW Australia

On page(s): 300 - 306 vol.1

Volume: 1

Reference Cited: 14

Number of Pages: 6 vol. (Ixxii+Iii+3773)

Inspec Accession Number: 6396615

Abstract:

The paper compares a number of strategies devised to gain access in slotted channel all-optical **ring networks** whose nodes have a distinct transmission rate, each channel and limited transmission/reception capabilities, i.e., one tunable and one fixed receiver. The considered access strategies can be **subdivided** in two groups, depending on the information used to select the next packet for transmission. "A-priori" strategies select the packet only according to the knowledge of the transmission queues. "A-posteriori" strategies rely on the knowledge of the state of the transmission queues and optical channels. A number of strategies belonging to the former group were recently proposed by the authors and offer an intrinsic hardware algorithmic simplicity. Two novel strategies belonging to the latter group are presented in this paper with the aim of assessing the trade-offs between complexity and overall system performance, including achievable throughput and queuing delay. Simulation results obtained under several traffic scenarios show that the increased complexity of a posteriori strategies pays off in terms of performance.

Index Terms:

[access protocols](#) [delays](#) [network topology](#) [optical fibre networks](#) [packet switching theory](#) [wavelength division multiplexing](#) [MAC protocol](#) [a-posteriori access strategies](#) [throughput](#) [algorithmic simplicity](#) [all-optical slotted WDM rings](#) [fixed receiver](#) [hardware simplicity](#) [network nodes](#) [optical channels](#) [queuing delay](#) [simulation results](#) [slotted](#)

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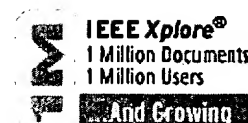
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